CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1. 1. A method for traffic shaping for packet data communications comprising:
2. establishing one or more packet queues, each queue carrying packet traffic
3. for a particular connection having a desired packet transfer rate;
4. directing each incoming packet to the queue assigned to the connection
5. over which the packet is received;
6. providing a frequency for packet transfer in a series of frequencies;
7. generating packet transfer rates appropriate for each existing output con-
8. nection by combining packet transfer frequencies; and
9. transferring a packet from an assigned queue in response to combined transfer frequen-
10. cies.

1. 2. The method of claim 1 wherein said directing step further comprises: receiving
2. said packets by receiving logic.

1. 3. The method of claim 1 wherein said providing a frequency step further comprises:
2. generating packet transfer signals by a timing logic circuit.

1. 4. The method of claim 1 wherein said transferring a packet step further comprises:
2. transferring by cell transfer logic circuits in response to said combined transfer frequen-
3. cies.

1. 5. The method of claim 1 further comprising:
2. diverting a packet from an assigned queue in the event that the assigned queue is filled
3. above a threshold by reception of said packet.

1. 6. The method of claim 1 further comprising:

2   inhibiting generation of a packet transfer signal if any higher frequency output is enabled

3   to generate a packet transfer signal.

1   7.   The method of claim 1 further comprising:

2   establishing lists of associations between a timing circuit and packet queues, said timing

3   circuit enabled to generate packet transfer signals for any queue on its list.

1   8.   The method of claim 1 further comprising:

2   generating a phase difference between an outputs from timing circuits for neighboring

3   frequencies in the series of frequencies.

1   9.   The method of claim 1 further comprising:

2   generating each frequency of said series of frequencies so that the frequencies are repre-

3   sented by F/v, where F is a maximum packet transfer rate and v is an integer value.

1   10.   A method for operating a switching hub having a switching fabric, at least one

2   input adapter and at least one output adapter, one or more of said input or output adapters

3   including a traffic shaping apparatus, comprising:

4   providing one or more packet queues, each queue carrying packet traffic

5   for a particular connection having a desired packet transfer rate;

6   directing each incoming packet to the queue assigned to the connection

7   over which the packet is received;

8   providing a frequency in a series of frequencies to generate a packet trans-

9   fer rate;

10   combining said frequency for a plurality of said queues to generate packet

11   transfer rates appropriate for each existing connection; and

12   transferring a packet from the assigned queue to a given output connection in response to

13   combined frequencies appropriate to the given output connection.

1   11.   A computer readable media having instructions which a computer responds to for

2   practice of the methods of claim 1 or claim 10 written thereon.

1 12. Electromagnetic signals propagating over a computer network, a computer re-

2 sponding to said electromagnetic signals for practice of the method of claim 1 or claim